Our spelling has gone haywire again. We meant to write “Four” for this issue concludes the third unbelievable year of our reborn, or rejuvenated, or rebounding association and its lusty baby brother, The Green Thumb. But perhaps it is better to spell our title correctly, for “Fore” means “watch out” to the golfer and every other Civic Association must watch out, if the Colorado Forestry and Horticulture drives half as far on number four as it has on one, two and three.

Boasting?

Yes. But haven’t we some license to? Three years ago the officials of an ancient but not too aggressive Colorado Forestry Association decided that the tens of thousands of eager silviculturists, horticulturists, agriculturists and other culturalists in Colorado were entitled to something more active —and helpful. So the Forestry Association was made into the “Colorado Forestry and Horticulture Association,” and a modest leaflet of eight pages called The Green Thumb was distributed to the fifty or sixty members of the Association. Last July the 34-page profusely illustrated Central City number of The Green Thumb was sent to 1200 members of the Association and as many additional copies were eagerly purchased by non-subscribers. During this period, Horticultural Institutes have been held at which eminent scholars from the Universities and skilled plantmen from the nurseries have told us the members of the Association about our trees, shrubs and flowers, our soil and climate, the forests, our water problems, conservation—the live and worthwhile things Colorado’s horticultural population wants to know. Plans for a Colorado Botanical Garden, which has been a “must” for many years, are under discussion; a study of needed legislation has been made; a city-wide survey of the Elm Tree Scale, with recommended protective measures, was conducted; and last—and best of all—the use, without charge, of a separate, specially equipped headquar-

ters has been provided by our President.

The new home of the Colorado Forestry and Horticulture Association—shall we call it “Horticulture House”—is located at 1355 Bannock Street (on Civic Center) and is now being altered to fit the Association’s needs. A botanical laboratory and herbarium, assembly room for exhibitions, lectures, meetings and institutes, offices for the Association’s horticulturist and the editor of The Green Thumb, and accommodations for its treasurer and assistant secretary—all solely devoted to the needs of the society—all these accommodations are in our new home.

The Future?

It is even more dramatic. George Kelly makes every copy of The Green Thumb more informative, more beautiful and more indispensable to every Colorado resident who has any interest whatsoever in our flora—native and cultivated. Walter Penman has published in this issue the first installment of a manual on “Landscaping the Small Home,” which will be employed in a series of lectures being given free, to Veterans who have recently acquired homes. Of course the Denver schools and further needed support, should convert his “Annual” membership into a “Sustaining” membership ($5.00 a year) or into a “Patron” membership ($10.00 a year), or “Contributing” membership ($25.00 a year). And let every member of this Association secure for us at least one new membership. Colorado has at least 12,000 gardeners who need this association!

Robert E. Moro.

LEAFLESS TREES

Even with autumn on the bough Fore better beautiful than now, When their frail branches hold Skies of clear and lucent gold— Lovelier now than in the spring— Why should trees wear anything?— Mrs. Jamie Sexton Holme, From “I Have Been a Pilgrim,” Published by Henry Harrison.
TOPSY “just growed.” Home grounds should be planned first, and then grow. The result will tell.

Planning your home grounds is not difficult. But it is important to do it in time. If you don’t decide just where your walks are going to be, until the cement man is there with his mixer,—you are apt to get them in the wrong place. And if you buy nursery-stock and flowers without planning what and where,—don’t be surprised if your grounds are a “mess” within a year or two.

The following hints are made for the typical home ground in this region: 50 feet by 125 feet; (the “parking strip,” so-called, does not belong to the home owner, but is landscaped by him anyway, so we’ll include it).

You need to be an artist to make an artistic yard;—but a lot of people are artists without knowing it. If they aren’t, their wives can often furnish the artistic touch while hubby watches over the practical side. And that is just as important: it is no use, for instance, to plan for gaillardias in a spot that never sees the sun, or to provide for sun-bathing in a yard with high trees along the south side. In other words, every landscape plan must have the OK from Mr. Sun. Even the location of garage and clothesline must get the sun’s sanction.

Some ideas for different exposures are given in the sketch on p. 2. They are merely suggestions,—something to make us think of the importance of location if we have a chance to choose before building.

Walks and drives can be planned to be both practical and good-looking. Splitting a back yard in two halves by a cement walk is seldom necessary, nor desirable; keep the main rear lawn open: it looks best, is easier to mow, gives an impression of spaciousness,—even to a fairly small lawn.

Here are a few practical suggestions for the location of house and garage. In general place both on the north end of the lot, so as to use all the sun you can get. (Consult the zoning ordinance to find out how far from the side line and how far from the front line your house and garage must be by law.)

In general one needs shade on the southwest side of the living quarters and, again in general, the strictly utilitarian items such as clothes lines, ash pit, and kitchen entrance are best northeast from the house.

Everything else being equal most of us find it desirable to connect front yard and back yard by a definite walk, even if it is only made of stepping stones.

Curved walks are not necessarily more beautiful than straight, direct ones; they cost more and take longer to follow. If they divide the lawn in two parts, they are just as wrong as a straight walk that cuts the lawn in two. Direct walks are usually best.

Whether or not to plant trees in the front parking is a question of shade and sunshine, and of privacy and neighborhood consciousness. In other words, if the whole block should have red oaks in the parking, I would certainly want to follow suit, but to rob myself of sunshine just because my neighbor likes dark rooms,—that does not seem to make good sense to me.

The same argument holds for
the grading of a lot. Many contractors seem to take it for granted that we want our ground as nearly level as possible. So we spend good money for grading, only to be told afterwards: "What a pity you did not take advantage of that low spot to have a nice pool," or "The beauty of a place lies in having different levels with garden steps joining them." Each home yard should make the best of its particular slope, always keeping in mind that water must drain away from the house.

There is no disgrace in having children or dogs, even if apartment house owners might intimate it. The folly lies in not providing for them. Some home grounds have children's playgrounds, others dog-runs, others vegetable gardens and cut flower gardens. Why not? They can, (and should,) be made part of the general plan,—not stuck in afterwards, in spots where they do not belong.

On the same principle we should decide beforehand if, and where we want an outdoor fire place, a birdbath, a hammock, a wall fountain, a sundial, a rock garden, a tannery (excuse, I mean a sun bathing spot). Yes, and I'll admit that you have a perfect right to provide for an outdoor museum of rock specimens, if that pleases you. The main thing is, to plan for it in time, and to find a logical place for each. And the inference is also: "Do not indulge in a whim, if you have not room for it. It is much better to have a simple, roomy lawn with a pleasant place to sit, than to try for odd fancies, that are not of lasting pleasure."

By this time I think you'll agree, that it is best to make a list of the things you want and to draw a plan to scale so as to find out what will go in, and what won't. It may hurt you to discover that the average home ground is not large enough for a tennis court, but it saves disappointment later, if your mind is set on it without careful plan-
ning. We can do without things once we are shown their unimportance, as compared with other more desirable things.

From all this it might seem that art and good taste have little to do with the planning of a yard. Just the opposite is true: Art and good taste are of primary importance, but cannot be achieved if we do not know definitely what we have to work with. Designs vary. A sculptor's marble statue does not resemble a wood carving; pastel, oil and water-color produce different types of art, and a brick building has a different "feel" from a frame cottage.

It is not the things that go into a yard that make it beautiful or hideous or uninteresting—it is the way those things are combined and organized. Well-planned homegrounds have no odd corners left over, each part fits in with the next part.

The view is the outstanding feature of a garden design, (call it vista if you prefer the high-sounding name). The more important a view, the more carefully it should be treated. There is, for instance, the view from the main window of the living room. It should be worth framing; in fact, it is actually framed by that window. Other views are from other windows, (don't forget the kitchen window!). Then most of us want the view of the house from the street and sidewalk to be an attractive one. As with a portrait, the full-face view is much less important than the three-quarter view.

How to create a pleasing vista? It is not at all difficult. In general it is well to have a view framed by one or two trees, placed at the sidelines of the picture." The center should be kept uncluttered; a piece of lawn is always restful. A rather quiet background, an interesting middle ground, a central feature to catch the eye,—there are the components of your composition. (Usually the simpler designs are the more attractive ones.

"Central features" can be of many types: a birdbath or seat is quite apropos in a garden; gazing globes or carefully selected sculpture may be just the thing; an arbor, pergola, or outdoor fire place can be used as a "focusing point". Specimen trees or shrubs are more difficult to use as centers of attraction; strangely enough it seems to be the combination of man-made and nature-made objects that strikes us as "just right." Check up on this in your favorite garden pictures: almost all have a "humanized" central feature.

"What shall I do about my neighbor's ugly garage?" "How can I screen out my clotheslines and ashpit?"—Well, tall shrubs and vines can do wonders in that respect. Our next number of the
"Green Thumb" will give a list especially for home use. The January-February number had a very complete enumeration of hedge plants, both for formal and informal use: all can be used for screens. Remember that the evergreen kinds are doing the better job, since they screen both in winter and summer. Of course, they are more expensive. Oh, yes, expense! The average home-owner must watch the pennies spent on the grounds, especially if the building contract has exceeded the original estimate and doesn't include the definite location in mind, and does not need to be moved when the whim strikes. A five-year plan can be carried out in detail, with so much spent each year, completing the picture as it is carried out. Remember, too, that a well-planned garden increases the value of your property by a nice little
WE'RE high and dry in this section of country and ferns generally have no fondness for dry places. They like to live where the air is lush and humid but their immense variety makes it possible to select kinds adapted to almost any location—a dozen or less species might be the answer here.—however these meet with our shade requirements for such specific uses as general borders, rock and water gardens, driveways, parkways and many odd places.

The Ostrich and the Lady ferns are exceptionally tough here and they possess an elegance not surpassed by any of our flowering plants. The Ostrich is one of our best. Since it increases by underground runners, it soon forms dense growths of almost tropical luxuriance; then, too, it is one of the two or three that lends itself to conditions of the general border where we are constantly having more and more respect for foliages.

The shady parts of our garden give us lots of trouble. Jumping way back, this concern might have been necessary when many a fine tree was sacrificed for mass bloom, when those quiet spots were neglected as part of the garden development. We know
better now. We recognize that flowers are but incidental to the plan and that ferns and other shade-lovers may reclaim those waste places.

The Maidenhair (Adiantum pedatum) is also very hardy in Colorado. It probably is more appreciated than all of the other ferns put together. Strangely enough it is being confused constantly with other plants that are not even ferns. You will often have the Columbine, the Baneberries and the Meadow Rue pointed out as the aloof Maidenhair. We use the Cinnamon and the Christmas ferns (Osmunda cinnamomea and Polystichum acrostichoides) with great dependability in both Denver and Boulder gardens but the Hayscented (Dicksonia punctilobula) I do not exactly know. When it fails to grow it may be our own fault. It grows well here in our shade house where there are tons of peatmoss used. None of the ferns here seems so much at home as the Bracken, the chief characteristic of which is strength and coarseness. It creeps for long distances and can be moved only when dormant. It turns brown in autumn but does not wither away until the following year. I like its

They are:
- The Winged wood fern (Dryopteris hexagonopteris)
- The Beech Fern (Phegopteris hexagonopteris)
- and the common Woodsia (Woodsia obtusa)

I have travelled the roads of Denver for the past weeks trying to secure some sort of a fair index of the fern gardens—the camera has caught a few lovely spots here. In the select gardens of Mr. and Mrs. Mason Lewis the Colorado Male has been planted on three sides of the tea-house in the south end of the gardens. The Siberian Forget-me-not has been added and the spring should be especially pretty there with its English Primulas, yellow and white. The Jan Van Houtens' new terrace has a border of ferns, Funkia and Saxifrages. Surprisingly too the white Phlox, Mia Ruys is there with many more shade plants—all just a touch in their characteristically charming gardens. I visited many places in the process of construction with a date for ferns. In the unusual terraced gardens of Dr. and Mrs. J. B. Walton is a 25-foot border under elm trees. Ferns are to be massed here with Japanese Ane-

mone, the two Baneberries, Shoot-
to the study and the experimental cultivation of ferns has this to say, "My experience has been that ferns can be transplanted successfully any time during the growing season... it is a matter of disturbing the roots as little as possible, keeping them moist and protected from the air and sun until the plants are established in their new homes. This has been our experience for years—this last July Dr. and Mrs. Leonard Van Stone, themselves, moved hundreds into their garden (pictured here) in full growth—you should see them—they are only a part of a beautiful garden picture.

For those who wish to read and study ferns, there is a list of books attached, furnished by Mrs. Wyer, wife of our city librarian, Dr. Malcolm G. Wyer.

COVERING: We never cover our ferns. They protect themselves. Their only covering is made by the dying of their own fronds, which naturally fall away from the center of the plant, cover the surrounding soil, but leave the crown of the plant uncovered and unhindered to start off in the spring.

SOIL: Ferns like a well-prepared bed incorporated with plenty of humus, peatmoss, sheep manure, or leafmold. Do not drown them one day and then run off to the mountains for a week end. Keep constantly and evenly moist, bearing in mind that soil stagnation comes easily in dark places.

The Fern Allies—Willard N. Clute
Ferns in their Haunts and Ours—John Robinson
The Fern Collectors Handbook—Sadie Price
How to Know the Ferns—Frances T. Parsons
Plants of the Rocky Mountain National Parks
Wild Flowers and Ferns—Herbert Durand
Flora of Colorado—Ryder
American Ferns—Roberts and Lawrence
Our Native Ferns—Prof. L. M. Underwood—"A complete but coldly scientific work"
Parsons and Clute's Books "Both are written in non-technical language and refer to culture only in the most casual way"
Linden Tree in Civic Center, Denver — Photo by Edgar E. Warren

On Opposite Page—Red Oak in Sloan's Lake Park, Denver — Photo by Edgar E. Warren
DORMANT SPRAYING
BY PAUL N. MORROW
Grounds Foreman and Horticulturist for the Denver Public Schools

Here is information on one of the most important subjects with which a Forester or Horticulturist should be concerned, written by a man who knows.—Editor.

So long as man and insects need the same things for existence, injurious insects will constitute man’s greatest threat to survival. Concern over this fact has caused much study and experimentation, which has enabled man to strike at the insects’ most vulnerable spots. From this effort we have learned much about their habits. We now know that, when and how they eat; that usually the plant of their abode is also their food supply; that most insects are inactive in cold weather; that they pass through the winter in one of three states: egg, young or mature; that trees can take a more concentrated spray solution while dormant, without injury; and that a dormant spray can be more easily applied, assuring better results. All of this indicates the importance of dormant spraying.

The insects for which we normally do dormant spraying are European Elm Scale, Cottony Maple Scale and Oyster Shell Scale. Dormant spraying will also help to control other scale insects, aphids, red spider and spruce gall.

The European Elm Scale spends the winter as second instar nymphs. It is unarmored and is found in great numbers on the underside of limbs, in the small crevices on the bark and is protected by coverings secreted by the insects themselves. These winter forms are light gray, about as large as the head of a pin. The mature form in summer is almost a quarter of an inch in diameter and cottony underneath. It attacks all elms but is more numerous on the American. These insects weaken and kill trees by the constant sucking of the sap. The trees become black and unattractive from the dropping of the honeydew secreted by the young scales. It also smuts walks and benches, and attracts thousands of flies, wasps and ants. The Oyster Shell Scale differs from the Elm Scale in that it has armor and goes through the winter in the egg stage. From fifty to sixty eggs will be found under each armor, which constitutes the remains of the mother scale. The eggs hatch in June and July. In appearance they resemble tiny oyster shells. Oyster Shell Scale is a real killer on a variety of trees and shrubs, especially ash trees, lilacs, cottonaster and dogwood.

The Pine Scale has a life cycle similar to that of the oyster shell. They remain attached to the needles and gradually suck the life out of them causing them to fall. They are especially bad on pine and spruce. In size they are about as large as the head of a pin, and are white.

The Cottony Maple Scale has a different life cycle. Only mature females pass through the winter as small brown scales. In the spring when the sap starts flowing, they grow very fast and start laying eggs which are secreted in cotton like masses of wax under the mother scale. Each female lays from fifteen hundred to three thousand eggs which hatch around July first. The accompanying picture shows them about natural size. At one time they were very numerous in Denver but all mysteriously disappeared one winter. Recently they have been found in South Denver on maple, honey locust, horse chestnut and even on elm.

Red Spiders pass the winter as adult females on various wild and cultivated plants, usually evergreens or hardy perennials. They are very tiny insects difficult to see without a glass. They are active through the winter except during very severe periods. I have removed infested twigs from Juniper trees on very severe days in January to the inside where it was warm and in a short time there was much activity among the spiders. The female spider does not start laying eggs until warm weather. A dormant spray applied before this time is very ef-
flective in controlling them. Whenever the food supply of the Red Spider runs short it starts migrating. In such a case, the benefit of all sprays is only temporary.

While all the above mentioned insects vary in their life cycles, they are very vulnerable to good dormant spraying. Trees and shrubs in their dormant stage can take without injury insecticides of sufficient strength to destroy the eggs or kill the insects. Sprays can also be applied during the dormant period without injury to beneficial insects and disturbance to the biological control of the injurious ones. This is an important consideration.

Dormant spraying must be of a contact nature and possess either a dehydrating or penetrating quality. Lime sulphur and miscible oils have filled this need very effectively. A good fast-breaking oil properly emulsified has become most commonly used for dormant spraying of deciduous trees. A good emulsifying agent added to the properly selected spray oil causes the oil and water to flow freely together in a rather stable solution requiring very little agitation. Oil spray in this stage assumes the appearance of milk. The water acts as a carrying agent and permits a smooth even distribution of oil over the entire tree. The emulsifying agent comes into the picture again at this point causing the spray to adhere to the surface of the tree and waxy-covered insects, and it also aids penetration.

Oil sprays are also used on evergreens but in a very much weaker solution. Lime sulphur remains the most commonly used spray for evergreens. It has some disagreeable qualities such as bad odor, caustic action to skin and eyes of spray operator, and the staining of paint and masonry work. Sprays used on evergreens at dormant strength must be applied before the appearance of new growth.

The method of application of this material is as important as the materials themselves, the chief factor being a proper mixture thoroughly agitated and used with sufficient pressure. The ratio of mixture varies according to the insect involved and the trees to be sprayed. Pressure sufficient to break spray into a fine fog-like mist is necessary so that all parts of the tree are thoroughly covered. This usually requires four hundred or more pounds of pressure. Time of application is also important. This may be in fall or spring, when the leaves are off, when the weather is likely to remain above 40 degrees for several hours and when there is not too high a wind.

With all these difficult factors to consider, the best guarantee of effective spraying is the knowledge and honesty of the sprayer. I realize that dormant spraying is not a "cure-all," but it controls more different kinds of insects with one application than any single spray applied at any other time.

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Our beautiful cover this month has been made possible through the generosity of the
D. Hill Nursery Company and its president, Mr. George W. Kelly.

On behalf of the Green Thumb and all its readers we thank the D. Hill Nursery
Company and its president, Mr. Arthur H. Hill.

The Koster Blue Spruce is one of the most famous and beautiful trees in the world.
It is a graft from our own Colorado Spruce (Picea pungens var. kosteriana, Hort.)

KOSTER BLUE SPRUCE

Our beautiful cover this month has been made possible through the generosity of the
D. Hill Nursery of Dundee, Illinois. We have been promised, in addition, 10 other equally
beautiful illustrations in color, all taken from L. L. Kumlien's book, "The Friendly Ever-
greens," which has just been published by the D. Hill Nursery Company. ("The Friendly Ever-
greens" will be in the new library of The Colorado Forestry and Horticulture Asso-
ciation.)

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Privacy Is Essential in the Rear Yard

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